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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,645	07/15/2003	John G. Leishman	MR2833-27	5244

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EXAMINER

KERSHTEYN, IGOR

ART UNIT PAPER NUMBER

3745

DATE MAILED: 12/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/618,645

Applicant(s)

LEISHMAN ET AL.

Examiner

Igor Kershteyn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/18, 8/20, 8/25/04</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-6, 8, 9, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crimi (4,045,146) in view of Azuma (5,562,414).

Crimi, in figures 1-4 teaches a rotor blade system with reduced blade-vortex interaction noise, comprising: at least one rotor blade B coupled at one end thereof to a central hub H and extending radially therefrom and terminating in a rotor blade tip face at another end of said at least one rotor blade B opposite to said one end thereof, said at least one rotor blade B having spaced apart upper and lower surfaces, leading and trailing edge portions at respective opposing joined edges of said upper and lower surfaces, and an interior volume of said at least one rotor blade defined and enveloped by said upper and lower surfaces, said leading and trailing edges, and said rotor blade tip face; and at least one tube member D embedded into said at least one rotor blade in proximity to said another end thereof, said at least one tube member D having an inlet I located at said leading edge, an outlet, and a tube member length extending between said inlet and outlet within said interior volume of said at least one rotor blade.

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Crimi doesn't teach the outlet located at said rotor blade tip face.

Azuma in figures 1-6, teaches a rotor blade system with reduced blade-vortex interaction noise having a duct 3 embedded into a blade 1 having an outlet 6a located at a rotor blade tip face 4a.

Since Crimi and Azuma are analogous art because they are from the same field of endeavor, that is the a rotor blade system with reduced blade-vortex interaction noise art, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the rotor blade system with reduced blade-vortex interaction noise of Crimi with the outlet located at the rotor blade tip as taught by Azuma for the purpose of blowing the blade tip vortex away from the tip thus providing a noise reduction device for rotorcraft.

Claims 2, 3, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crimi (4,045,146) in view of Azuma (5,562,414), further in view of design choice.

Crimi as modified by Azuma discloses the tube member extending in a predetermined fashion within said interior volume of said at least one rotor blade, and wherein an inlet and outlet are formed respectively on said leading edge and said rotor blade tip face of said at least one rotor blade.

Crimi as modified by Azuma does not disclose expressly a plurality of four tube members extending in a predetermined fashion within said

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interior volume of said at least one rotor blade, and wherein a plurality of inlets and outlets are formed respectively on said leading edge and said rotor blade tip face of said at least one rotor blade.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to duplicate the tube member in quantity of four because Applicant has not disclosed that duplicating tube members provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the tube of Crimi as modified by Azuma because a single tube member would provide a flow equal to that of multiple tubes with the total cross section equal to the cross section of that single tube member.

Therefore, it would have been an obvious matter of design choice to modify Crimi as modified by Azuma to obtain the invention as specified in claim 2, 3, and 10.

**Note.** Additionally, see MPEP 2144 Sources of Rationale Supporting a Rejection Under 35 U.S.C. 103, 2144.04 [R-1] Legal Precedent as Source of Supporting Rationale, B. Duplication of Parts.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Crimi (4,045,146) in view of Azuma (5,562,414), further in view of design choice.

Crimi as modified by Azuma discloses all the claimed subject matter.

Crimi as modified by Azuma does not disclose expressly the distance between said outlets is approximately 0.157 of the chord of said rotor blade tip,

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and wherein the diameter of each said tube member is approximately 0.067 of said chord.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to make the rotor blade with the distance between outlets is approximately 0.157 of the chord of the rotor blade tip, and wherein the diameter of each tube member is approximately 0.067 of said chord because Applicant has not disclosed that making the outlets at location as claimed provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the outlets of Crimi as modified by Azuma for blowing the blade tip vortex away from the tip.

Therefore, it would have been an obvious matter of design choice to modify Crimi as modified by Azuma to obtain the invention as specified in claim 7.

### ***Prior Art***

Prior art made of record but not relied upon is considered pertinent to Applicant's disclosure and consist of four patents.

Yuan (3,692,259) is cited to show a rotor blade system with reduced blade-vortex interaction noise having a plurality of jets located at a tip of the blade but fails to teach an inlet located at a leading edge of the rotor blade.

Yuan (3,936,013) is cited to show a rotor blade system with reduced blade-vortex interaction noise having a plurality of jets located at a tip of the blade but fails to teach an inlet located at a leading edge of the rotor blade.

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Lorber et al. (6,203,269) is cited to show a rotor blade system with reduced blade-vortex interaction noise having an inlet located at a leading edge of a rotor blade but fails to teach a plurality of outlets located at a tip of the blade.

Japan Patent No. 06199295 is cited to show a rotor blade system with reduced blade-vortex interaction noise having a plurality of jets located at a tip of the blade but fails to teach an inlet located at a leading edge of the rotor blade.

***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Kershteyn whose telephone number is (703) 308 8317. The examiner can be reached on Monday-Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look, can be reached on (703) 308 1044. The fax number is (703) 872-9306.

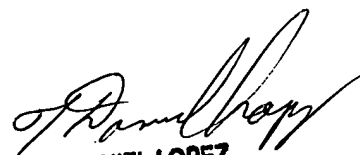
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308 0861.

IK

November 18, 2004



**Igor Kershteyn  
Patent examiner.  
Art Unit 3745**



**F. DANIEL LOPEZ  
PRIMARY EXAMINER**